Carbaryl Monitoring Report

Environmental Monitoring and Pest Management Branch
Department of Pesticide Regulation
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Environmental Monitoring of Carbaryl in Glassy-Winged Sharpshooter Treatment Areas in Porterville

This newsletter provides brief summary of monitoring results of carbaryl (7® Insecticide) in various environmental samples collected by the Department of Pesticide Regulation (DPR) during the glassy-winged sharpshooter control program in Porterville, Tulare County.

DPR's Roger Sava and Nina Bacey participate in community information meeting at Porterville.

The Tulare County Department of Agriculture, under the guidance of the California Department of Food and Agriculture, has been treating glassy-winged sharpshooter infested properties with carbaryl. DPR monitors selected treatments in urban residential areas for carbaryl residues. Samples were taken for spray mixture in tank, air, foliage, surface water, fish and garden fruits and vegetables (see map).

Spray Tank Samples

Samples were collected from the hose-end of a spray tank

Concentration of carbaryl in tank samples, Porterville, Calif., 2000

Location	Date Sampled	Carbaryl Concentration (%)
Capitola St.	6/20	0.26
W. Grand Ave.	"	0.31
Morton Ave.	6/21	0.25
Bel Aire Cir.	6/27	0.32
Mulberry Ave.	7/18	0.21

Calculated theoretical tank concentrations at label rates from 1 to 4 teaspoons per gallon of water are 0.05 to 0.21 percent, respectively.

Surface Water and Fish Samples

Water samples were taken from the Tule River, two residential fishponds and a goldfish tissue sample following treatment. No carbaryl residues were detected.

Sampling water from Tule River at W. Olive

Concentration of carbaryl in surface water samples, Porterville, Calif., 2000.

Location	Date Sampled	Concentration (ppb)
Tule River @ Plano Rd	6/20, 7/18	nd
Tule River @ W. Olive	"	nd
Goldfish pond @ Cobb St	7/18	nd
Goldfish pond @ W. Mulberry	7/19	nd
Gold fish @ W. Mulberry	7/19	nd

nd=no detection at reliable detection level of 0.05 ppb for water and 0.1 ppm for fish
Drinking water health advisory level is 60 ppb (California Department Health Services)

Leaf Samples

At each site 40 one-inch diameter leaf samples were taken one hour after treatment. Samples were analyzed for dislodgeable foliar residue. These residues are comparable to levels ranged from 2.4 to 5.6 ug/cm^2 in other field studies conducted in citrus for safe reentry. (Iwata et al. 1979. J. Agric Food Chem. 27:1141-1145)

Location	Leaf Type	Carbaryl (ug/cm^2)
Capitola St.	Apricot, citrus, and grape	5.29
W. Grand Ave	Oleander, waxleaf privet, plum	5.44
Morton Ave	Oleander, privet and ornamental pear	6.78
Bel Aire Cir	Waxleaf privet and ornamental pear	5.41
Mulberry Ave.	Waxleaf privet, ornamental pear and rose	5.70

Johanna Walters takes leaf punch samples

Produce Samples

Backyard fruit and vegetable samples were collected after the required numbers of days has elapsed since the carbaryl application. These preharvest intervals are crop specific and are listed on the carbaryl product label. The intervals ranged between 3 days for tomatoes and 7 days for grapes. All concentrations of carbaryl in produce sampled were well below the U.S. EPA established crop specific tolerances of 10 ppm (parts per million). The tolerances are enforceable maximum amount of residue allowed in crops and foods.

Concentration of carbaryl in produce sampled at preharvest interval in treatment area, Porterville, Calif. 2000.

Location	Produce	Concentration (ppm)
Capitola St.	Apricot	1.53
	Tomato	4.27
W. Olive Ave	Orange	1.59
	Orange	2.09
	Grapes	0.161
Sandra Ln	Nectarine	7.56
	Zucchini	0.945
	Squash	0.33
Gerry St.	Grapefruit	nd
Westfield Ave	Grapefruit	0.649

Collecting air sample with a high-volume air sampler in a backyard

Air Samples

Samples were taken at four intervals: a minimum of 12 hours before application, the duration of application plus one hour (total of 1.5 to 4 hours), 24 hours after application, and another 24 hours.
All samples were collected using XAD-4 resin tube with high volume air sampler at 1,000 liters per minute or with personnel air sampler at 3 liters per minute. All concentrations were well below the DPR's preliminary acute (24-hour) health screening level of 6,313 ppt (parts per trillion).

Concentration of carbaryl in air before, during and after application in Porterville, Calif., 2000

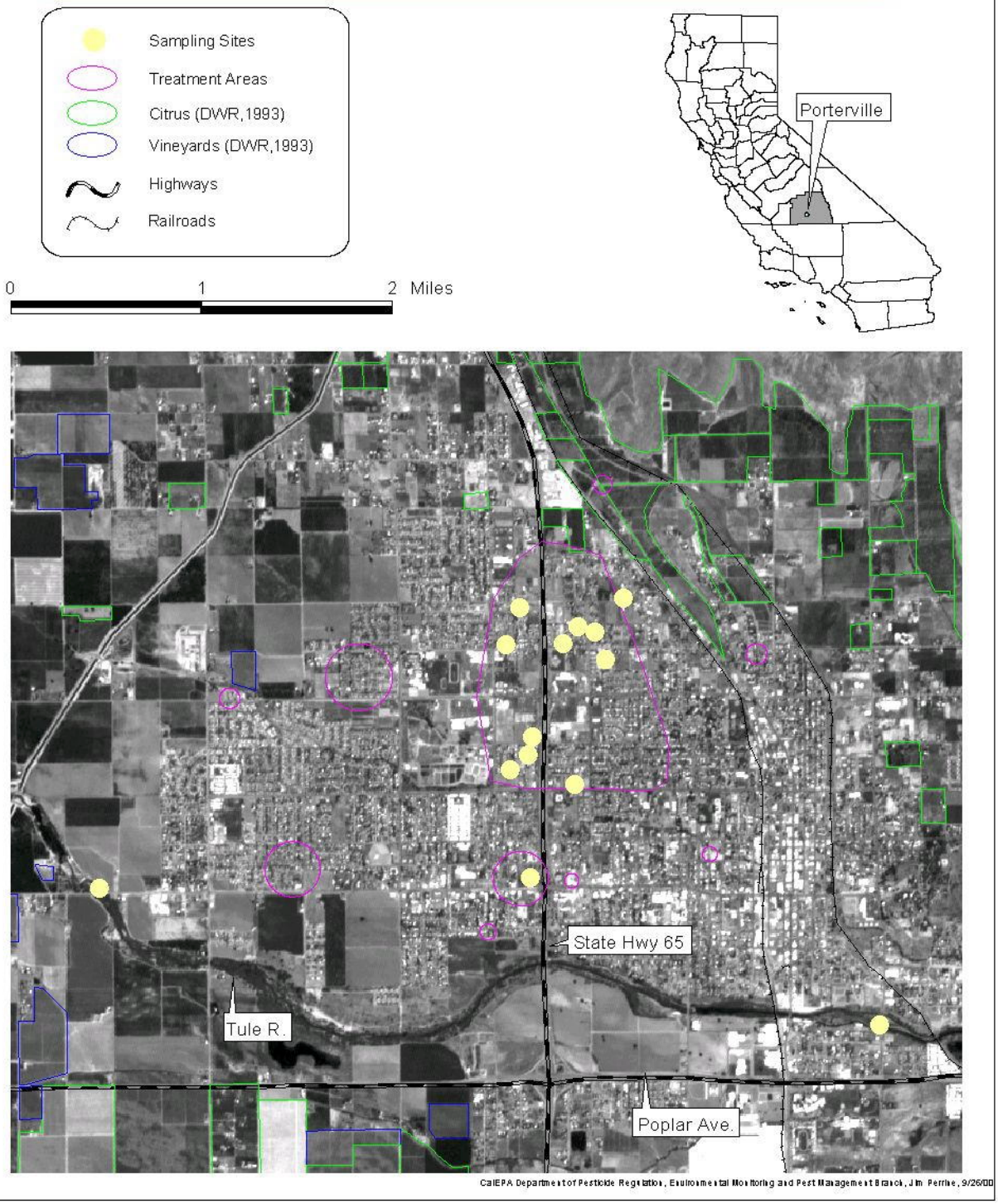
Location	Date Sampled	Before Spray (ppt)	During Application (ppt)	Post Application 24 hours (ppt)	Post Application 48 hours (ppt)
Capitola St.	6/20	nd	11	21	20
W. Grand Ave	¨	nd	23	24	21
Morton Ave	6/21	0.38	137	57	51
Bel Aire Cir	6/27	7.68	136	46	40
Mulberry Ave	7/18	nd	nd	42	42

We thank the homeowners for allowing us to take samples from their properties. We acknowledge the Center for Analytical Chemistry for samples analyses, and Department of Fish and Game for fish tissue analyses.
The assistance of the staff of the Tulare County Agricultural Commissioner, the Department of Food and Agriculture and the applicators is much appreciated. This project was funded by the California Department of Food and Agriculture's glassy-winged sharpshooter project special appropriation. Roger Sava, Johanna Walters, and Nina Bacey conducted the monitoring.

The mention of commercial products in this report is not be construed as either an actual or implied endorsement of such product.

For a detailed report, study protocol and other updates, visit http://www.cdpr.ca.gov/docs/gwss
or contact Kean S. Goh at (916) 324-4072 or email at kgoh@cdpr.ca.gov.

Carbaryl Monitoring Sites in the Glassy-winged Sharpshooter Treatment Areas, Porterville, Tulare County, Calif., 2000



CalEPA Department of Pesticide Regulation, Environmental Monitoring and Pest Management Branch, Jim Perrine, 9/26/00